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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/872,458	05/31/2001	Clifford N. Click	SUNMP018	3013

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MARTINE & PENILLA, LLP
710 LAKEWAY DRIVE
SUITE 170
SUNNYVALE, CA 94085

EXAMINER

KENDALL, CHUCK O

ART UNIT PAPER NUMBER

2122

DATE MAILED: 02/25/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/872,458

Applicant(s)

CLICK ET AL.

Examiner

Chuck O Kendall

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 December 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This action is in response to the application filed 12/08/03.
2. Claims 1 - 26 have been examined.

Response to Arguments

3. Applicant's arguments, see page 8, 3rd paragraph of response, filed 12/8/2003, with respect to the rejection(s) of claim(s) 1 – 20 under 35 U.S.C. 102 (b), have been fully considered and are persuasive. Therefore, the rejection has been withdrawn.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 – 6 & 21 - 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gilbert et al. USPN 5,121,498 in view of Gosling USPN 5,668,999.

Regarding claim 1, Gilbert discloses a method for loop optimization within a dynamic compiler system, comprising: creating a pre-loop structure based on an original loop structure (3:20 - 24), for indexing expressions, see routine calls); generating a main loop structure having indexing expressions based on the original loop structure, wherein the indexing expressions cannot produce an underflow (17:33 - 43, for main loop and original loop see nested loops) and creating a post-loop structure based on the original loop structure. Gilbert doesn't explicitly disclose wherein the pre-loop structure is capable of testing indexing expressions for underflow and wherein the post-loop

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structure is capable of testing indexing expressions for overflow. However Gosling does disclose this feature in an analogous art (FIGURE 4C, 452, FIGURE 4D, 472).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Gilbert and Gosling because, using different iterations of the loop to perform different functions makes the program more efficient.

Regarding claim 2, a method as recited in claim 1, wherein the pre-loop structure includes an array boundary test (Gilbert, 4: 18 – 32).

Regarding claim 3, a method as recited in claim 2, wherein the post - loop structure includes an array boundary test (Gilbert, 4:1 - 5, calls for multiple loop levels and nested loops from previously cited section above).

Regarding claim 4, a method as recited in claim 3, wherein the main loop structure does not include an array boundary test (Gilbert, 5:1 - 5).

Regarding claim 5, a method as recited in claim 1, further including the operation of compiling a computer program during execution of the computer program (Gilbert, FIGURE, 18).

Regarding claim 6, a method as recited in claim 5, further including the operation of interpreting lines of the computer program during execution of the computer program (Gilbert, 8: 15 - 17, for interpreting see AM).

Regarding claim 21, which cites similar limitations as previously discussed see rationale in claim 1.

Regarding claim 22, which cites similar limitations as previously discussed see rationale in claim 2.

Regarding claim 23, which cites similar limitations as previously discussed see rationale in claim 3.

Regarding claim 24, which cites similar limitations as previously discussed see rationale in claim 4.

Regarding claim 25, which cites similar limitations as previously discussed see rationale in claim 5.

Regarding claim 26, which cites similar limitations as previously discussed see rationale in claim 6.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 7 - 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gilbert et al. USPN 5,121,498 in view of Gosling USPN 5,668,999 as applied in claim 1, and further in view of Cartwright, Jr. USPN 6,075, 942.

Regarding other limitations in claim 7, Gilbert and Gosling teaches all the claimed limitations as applied in claim 1 above. The combination of Gilbert and Gosling doesn't explicitly disclose, creating a range check elimination loop structure based on the original loop structure during the compiling operation, wherein the range check elimination loop structure includes a pre-loop structure, a main loop structure, and a post-loop structure. However, Cartwright does disclose this limitation (7:25 - 40, also see 9: 50 - 55). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the modification of Gilbert and Gosling with Cartwright because, performing test and range checks in loops makes loops more manageable and efficient.

Regarding claim 8, a method as recited in claim 7, wherein the pre-loop structure is capable of testing indexing expressions for underflow (Gosling, FIGURE 4C, 452).

Regarding claim 9, a method as recited in claim 8, wherein the main loop structure, wherein indexing expressions included in the main loop structure cannot produce an underflow, and wherein the indexing expressions cannot produce an overflow (Gosling, FIGURE 4D, 472).

Regarding claim 10, which cites similar limitations as previously discussed see rationale in claim 9.

Regarding claim 11, which cites similar limitations as previously discussed see rationale in claim 2.

Regarding claim 12, which cites similar limitations as previously discussed see rationale in claim 3.

Regarding claim 13, which cites similar limitations as previously discussed see rationale in claim 4.

Regarding claim 14, which cites similar limitations as previously discussed see rationale in claim 6.

Regarding claim 15, which cites similar limitations as previously discussed see rationale in claim 7.

Regarding claim 16, which cites similar limitations as previously discussed see rationale in claim 2.

Regarding claim 17, which cites similar limitations as previously discussed see rationale in claim 3.

Regarding claim 18, which cites similar limitations as previously discussed see rationale in claim 4.

Regarding claim 19, which cites similar limitations as previously discussed see rationale in claim 6.

Regarding claim 20, which cites similar limitations as previously discussed see rationale in claim 7.

Correspondence Information

6. Any inquires concerning this communication or earlier communications from the examiner should be directed to Chuck O. Kendall who may be reached via telephone at (703) 308-6608. The examiner can normally be reached Monday through Friday between 8:00 A.M. and 5:00 P.M. est.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tuan Dam *can be* reached at (703) 305-4552.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 305-3900.

For facsimile (fax) send to central FAX number 703-872-9306 *and* 703-7467240 draft.

Chuck B. Kendall

Software Engineer Patent Examiner

United States Department of Commerce

A handwritten signature in black ink, appearing to read 'Tuan Dam', with a long horizontal flourish extending to the right.

TUAN DAM
SUPERVISORY PATENT EXAMINER